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ABSTRACT

This study assessed the relationship between teacher efficacy and teacher conceptual level, teacher empowerment, and school culture. Teacher participants (N=430) were primarily Caucasian females who taught in grades K-12, with the majority at the elementary (83 percent) or middle school (11 percent) level. They were evenly represented in the socioeconomic levels of the schools in which they taught. Analyses of the four surveys administered indicated: higher scores in teaching efficacy for female elementary school teachers with a negative correspondence to years of experience; no correlation to educational level; and significant correlation between efficacy and empowerment, conceptual level, and school culture. Personal teaching efficacy was the most closely related to motivation and teacher professionalism, while teaching efficacy was related to professional treatment by administrators, perceived potency, and values. School administrators had the highest level of personal teaching efficacy. Findings gave a possible profile of a low efficacy teacher as more likely to be male, a high school teacher, with fewer years of teaching experience, functioning at a lower conceptual level, and working in a less professional environment. Seven tables provide data on teacher and administrator characteristics, teacher efficacy, school culture, teacher experience and satisfaction, and correlation between teacher efficacy and other factors. (Contains 74 references.) (CK)

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# Teacher Efficacy and School and Teacher Characteristics

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**Teacher Efficacy and School and Teacher Characteristics**
**Abstract**

This paper examines the construct of teacher efficacy and its association with school and teacher characteristics. The research was conducted in the context of a U. S. Department of Education Fund for Innovation in Education grant to a large school district in the western United States. Subjects were 430 teachers who taught grades K-12. Rasch and factor analysis confirm the structure of the *Teacher Efficacy Scale* (Gibson & Dembo, 1984). Results suggest that females teaching at the elementary level have higher Teaching Efficacy than males teaching at higher levels. Significant differences in Personal Teaching Efficacy scores were found among administrators, teachers, and specialist/support staff, with Personal Teaching Efficacy highest for administrators and lowest for teachers ($F = 9.71$, $p = .001$). The multiple regression of Personal Teaching Efficacy for experience, satisfaction, and education variables resulted in an R of .22 ($p < .05$). For Teaching Efficacy, the multiple R was .31 ($p < .0001$), with years in present position, age, and satisfaction with position the significant predictors. Personal Teaching Efficacy can be predicted by Teacher Professionalism and Goal Setting on the *School Culture Survey* (Saphier & King, 1985), the question, "When I am not sure . . . " on the *Paragraph Completion Method* (Hunt, Butler, Noy & Rosser, 1978), and the Motivation subscale on the *Vincenz Empowerment Scale* (Vincenz, 1990). Teaching Efficacy can be predicted by Administrator Professional Treatment of Teachers on the *School Culture Survey* (Saphier & King, 1985), the question, "What I think about rules . . . " on the *Paragraph Completion Method* (Hunt, Butler, Noy & Rosser, 1978), and both the Potency and Values subscales on the *Vincenz Empowerment Scale* (Vincenz, 1990).

# Teacher Efficacy and School and Teacher Characteristics

## Teacher Efficacy

Teacher efficacy, as defined by Gibson and Dembo (1984), comprises the constructs of personal efficacy (self-efficacy - I can make a difference) and teaching efficacy (outcome expectancy - teachers can make a difference). Bandura (1977, 1986, 1993) defined self-efficacy as a person's judgment about whether he/she could complete future actions. Numerous researchers have found efficacy to relate to positive outcomes for students, such as reading achievement (Armor, Conroy-Oseguera, Cox, King, McDonnell, Pascal, Pauly, & Zellman, 1976; Tracz & Gibson, 1986). The purpose of this study was to assess the relationship between teacher efficacy, school, and teacher characteristics, as well as to examine the relationship between teacher efficacy, teacher conceptual level, teacher empowerment, and school culture. This information is important in designing appropriate interventions for teachers with low efficacy. The efficacious teacher believes that his or her decisions make a difference and that he/she has the ability to make decisions that lead to the resolution of difficult situations. A considerable amount of evidence suggest that when teachers believe they can make a difference, they in fact do. We review some of this literature below.

### Advantages of Teacher Efficacy

Researchers have identified a number of advantages of enhancing efficacy for teachers. Ross (1994) reviewed eighty-eight studies of both antecedents and consequences of teacher efficacy. Low efficacy teachers spent almost 50% of their time in small group instruction, while high efficacy teachers spent only 28% of their time in small groups (Gibson & Dembo, 1984).

Low efficacy teachers were also more likely to provide a student with the answer, ask another student, or permit other students to call out the answer than high efficacy teachers. In contrast, high efficacy teachers tended to lead students to the answer through questioning, were less critical, and were more persistent in failure situations (Gibson & Dembo, 1984).

Other advantages of high efficacy have also been reported. High personal teaching efficacy correlated with reading achievement and with achievement in language and mathematics (Tracz & Gibson, 1986). Teachers with high efficacy exhibited less stress and higher internal locus of control than low efficacy teachers (Greenwood, Olejnik, & Parkay, 1990), and teachers with high efficacy used solution-oriented conflict message strategies (Grafton, 1987). High teacher efficacy has also been linked with overall school effectiveness (Brookover & Lezotte, 1979), the use of fewer control tactics (Ashton, Webb & Doda, 1983), and higher levels of use of cooperative learning (Dutton, 1990). Glenn (1993) found that high efficacy teachers exhibited less anger for student behavior and academic failures, and were more willing to assume responsibility for those failures. Teacher efficacy in the middle school correlated significantly with teacher enthusiasm and higher grades for students (Newman, 1993). Teachers with low levels of efficacy were more likely to refer students from low socioeconomic status (SES) families to special education than teachers with higher levels of efficacy (Podell & Soodak, 1993). Furthermore, teachers with higher levels of efficacy had higher levels of parent involvement in conferences, volunteering, and home tutoring, and they perceived greater parent support (Hoover-Dempsey, Bassler, & Brissie, 1987).

Teachers holding high personal efficacy beliefs were more likely to emphasize the role of the teacher and the instructional program when explaining why students were successful. They

also de-emphasized the effects of the home (Hall, Hines, Bacon, & Koulianos, 1992). In addition, higher levels of curricular change were predicted by the interaction of high levels of efficacy and more frequent interactions among teachers (Poole, 1987; Poole & Okeafor, 1989).

Developing Teacher Efficacy

A number of models for developing and enhancing teacher efficacy have been proposed and explored. Ashton et al. (1983) found that team teaching and multiage grouping supported the development of efficacy because teachers had material and psychological support and were able to work with students over several years. A healthy school climate also contributes to the development of teacher efficacy. Hoy and Woolfolk (1993) found correlations between personal teaching efficacy (I can make a difference) and principal influence (the principal exerting influence for teachers), academic emphasis, and educational level. Surprisingly, they also found that teacher morale, trust, cohesiveness, and warmth were not related to personal teaching efficacy. Teaching efficacy is affected by teacher beliefs about students' ability to learn, faculty influence over school policy, and faculty beliefs about student behavior (Fletcher, 1990). Howat (1990) and Grafton (1993) found correlations between higher efficacy and perceptions of participation in decision-making.

In a study by Coladarci and Breton (1991), teachers who reported that their supervision was beneficial also scored higher on teacher efficacy. Grafton (1993) found a positive correlation between beginning teachers' sense of efficacy and their perception that they were encouraged to experiment and try new things in their positions. In a study by Showers (1980), more opportunities to participate and higher rates of actual participation in school decision making were associated with higher levels of self-efficacy.

Participation in Outward Bound courses resulted in significant increases in both personal and teaching efficacy by female participants (Sills, 1993). In a study by Moore and Esselman (1994), both personal and teaching efficacy were influenced by a positive school atmosphere that focused on instruction, the reduction of barriers to teaching effectively, and classroom-based decision-making. These researchers also found that schools with poor achievement historically tended to have teachers who reported lower efficacy and poorer perceptions of school atmosphere. Lofgren (1988) found that a partner school program, including research, resulted in increased teacher efficacy. In addition, training in the Hunter Instructional Model resulted in significant gains in personal efficacy, but not in teaching efficacy (Bolinger, 1988).

Predictors of Teaching Efficacy

A number of studies have been performed to determine the elements that predict teaching efficacy. Ross, Cousins, and Gadalla (1995) investigated within-teacher and between-teacher factors. They found that performance expectancies of secondary teachers varied among teaching assignments, and that teacher perception of student engagement significantly predicted teaching efficacy. Their research indicated that 21% of the variance in efficacy was attributable to within-teacher variables. Teachers whose self-efficacy was positively associated with perceived success were generally women who held a Master's degree and tended not to use non-traditional student assessment methods.

The influence of gender on personal teaching efficacy has been explored by a number of researchers. Females reported higher personal teaching efficacy in elementary school settings (Anderson, Greene & Loewen, 1988; Lee, Buck & Midgley, 1992) in high schools (Raudenbush, Rowan & Cheong, 1992), and in special education resource rooms (Coladarci & Breton, 1991).

Riggs (1991), however, found that males had higher efficacy when asked about their confidence in teaching science, which tends to be more of a male-dominated subject.

Several studies have been conducted investigating the effects of experience on teacher efficacy. Dembo and Gibson (1985) found that preservice teachers had the highest teaching efficacy (teachers can make a difference), and that teaching efficacy declined slightly with experience. In a study by Hoy and Woolfolk (1993), teachers declined slightly in teaching efficacy as they became more experienced. On the other hand, teachers increased in personal teaching efficacy with experience (Hoy & Woolfolk, 1993; Rubeck & Enochs, 1991). Chester (1991) found that teachers who entered the field of teaching when they were older grew more in personal teaching efficacy than younger teachers entering the field; however, if younger teachers had opportunities to collaborate with more experienced teachers, the effects were overcome. Coladarci and Breton (1991) linked higher teacher efficacy scores with higher age, although teachers who changed schools or experienced disruptive events tended to decrease in efficacy.

Other researchers have explored the effects of higher education on teacher efficacy. Findings by Hoy and Woolfolk (1993) indicated that educational level predicted personal teaching efficacy, but not teaching efficacy. In a study of K-4 teachers, Hoover-Dempsey, Bassler and Brissie (1987) found a slight positive correlation between teacher efficacy and higher degrees. In a study by Beady and Hansell (1981), blacks scored higher in teaching efficacy than whites.

Several studies have reported results of school level associated with teacher efficacy. Those finding higher efficacy among elementary teachers than high school teachers include Greenwood, Olejnik, and Parkay (1990), Guskey (1982), and Parkay, Olejnik, and Proller (1988). Researchers who have reported higher efficacy among elementary teachers than middle school

teachers include Fuller and Izu (1986), Lee, Buck, and Midgley (1992), and Midgley, Feldlaufer and Eccles (1988). In a study by Anderson, Green and Loewen (1988), teachers who taught Grade Three had higher teaching efficacy than teachers who taught Grade Six. Bandura (1993) suggested that kindergarten teachers have low efficacy, that teacher efficacy increases in grades K-1, and that efficacy decreases gradually in grades 2-6 as teachers notice deficits in students in increasing numbers. Furthermore, Raudenbush, Rowen and Cheong (1992) found that teachers who taught juniors in high school had higher personal teaching efficacy than teachers who taught sophomores.

School characteristics also predict teacher efficacy, and schools that have more positive environments tend to have teachers with higher levels of efficacy. When schools have well-behaved students (Fletcher, 1990), where teachers experience less stress (Greenwood, Olejnik, & Parkay, 1990), where schools have students who achieve at higher levels (Beady & Hansell, 1981; Smylie, 1988), where teachers are satisfied with their positions (Brissie, Hoover-Dempsey, & Bassler, 1988; Coladarci & Breton, 1991; Guskey, 1988), and where teachers would choose teaching as a career again, if given the chance (Trentham, Silvern & Brogdon, 1985), teacher efficacy tends to be higher.

School socioeconomic status can also influence teacher efficacy, although results are mixed. Hoover-Dempsey and others (1987, 1992) found school socioeconomic status unrelated to teacher efficacy. In a study by Rose and Medway (1981), fourth grade teachers in low SES schools had higher personal teaching efficacy, and were more willing to be responsible for failure on the part of students. In a study reported by Bandura (1993), the combination of low SES, high student turnover, student absenteeism, and low student achievement tended to lessen teachers'

feelings of efficacy.

Other findings provide additional information about school organizational factors related to efficacious teachers. When teachers interacted with peer coaches (Ross, 1992), when they worked together to make instructional decisions (Miskel, McDonald & Bloom, 1983), when teachers knew what teachers above and below them expected (Hoover-Dempsey, Bassler, & Brissie, 1987), and when they worked together to coordinate the curriculum (Moore & Esselman, 1992; Raudenbush et al., 1992; Rosenholtz, 1989), general teaching efficacy seemed to be enhanced.

This study confirms the strength of the *Teacher Efficacy Scale* (Gibson & Dembo, 1984) while providing correlational data with the *Hunt Paragraph Completion Method* (Hunt, Butler, Noy & Rosser, 1978), the *Vincenz Empowerment Scale* (Vincenz, 1990), and the *School Culture Survey* (Saphier & King, 1985). It also substantiates other studies investigating teacher characteristics that predict efficacy.

## Method

### Sample

Information is presented using the *Teacher Efficacy Scale* (Gibson & Dembo, 1984) with 430 teachers who are participating in a project in a suburban school district in a western state. Participants were teachers in the school district who were part of a three-year grant funded by the U. S. Department of Education Fund for Innovation in Education. The purpose of the grant was to assist teachers in implementing Colorado State Content Standards through Cognitive Coaching, Nonverbal Classroom Management, and monthly Dialogue Groups. Two hundred

thirty teachers participated in the experimental (Cognitive Coaching) group, and two hundred teachers participated in the control group. Personal and teaching efficacy were two of the variables that were measured as outcome variables in the study.

Table 1 provides a description of the background characteristics of teachers. Teacher participants were primarily female (89.9%) and Caucasian (93.4%). The majority taught at the elementary level (83%), with 11.3% at the middle school level, and 5.7% at the high school level. They were fairly evenly divided between the socioeconomic status of the schools in which they taught, with 31.4% teaching at low SES schools, 34.5% teaching at middle SES schools, and 34% teaching at high socioeconomic status schools. Thirty-seven percent had a Bachelor's degree, and sixty-three percent had a Master's degree or above. About one-third of the teachers taught in multi-age classrooms (32.7%).

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Table 1 here

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The average age of the participants was 43.25 years (SD=8.38), and they averaged 13.37 years of teaching experience (SD=8.72). They had been at their present school an average of 5.56 years (SD=6.05), and had taught in the school district an average of 11.11 years (SD=8.28). They had taken an average of 4.14 semester hours in the previous year (SD=5.89), and had taken an average of 1.62 inservice credits in the previous year (SD=2.11). They earned their most recent degree an average of 12.88 years ago (SD=8.67).

Their satisfaction with their present position was 4.36 on a 5-point scale (SD=.80), and satisfaction with teaching as a career was 4.36 on a 5-point scale (SD=.81). When asked about

satisfaction with Standards-Based Education, their average response was 4.07 on a 5-point scale (SD=.80), and they reported an average of 10.79 behavior problem students.

Administrators who participated in the study were also primarily female (69.7%) Caucasians (93.5%) (Table 2). The majority served at the elementary level (72.4%), with 6.9% at the middle school level, and 20.7% at the senior high school level. In contrast with the teachers, the majority were located at high socioeconomic schools (52.6%), with 36.8% at middle SES schools, and 10.5% at low SES schools. All administrators had a Master's degree or above.

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Table 2 here

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The administrators had an average age of 46.36 years (SD=5.58), had taught an average of 17.12 years (SD=7.45), had been in their present positions an average of 3.96 years (SD=4.40), had been in their present school an average of 3.22 years (SD=3.77), and had been in the school district an average of 13.17 years (SD=7.03). They had taken an average of 7.28 semester hours in the last year (SD=10.50) and an average of 3.22 inservice credits (SD=2.09) in the last year. Their most recent degree was awarded 12.79 years earlier (SD=8.27). They indicated that they were fairly satisfied with their positions, averaging 4.58 on a 5-point scale (SD=.50). Satisfaction with teaching as a career was 4.46 on a 5-point scale (SD=.72), and their attitude toward Standards-Based Education was 4.17 on a 5-point scale (SD=.78).

Instruments

Four instruments were selected for use in this study. They were the *Teacher Efficacy Scale* (Gibson & Dembo, 1984), the *Vincenz Empowerment Scale* (Vincenz, 1990), the *Hunt*

*Paragraph Completion Method* (Hunt, Butler, Noy, & Rosser, 1978), and the *School Culture Survey* (Saphier & King, 1985). These instruments were identified because they measured efficacy and other constructs potentially related to efficacy. A second reason for selecting these instruments was the high reported reliabilities. For the *Vincenz Empowerment Scale*, Cronbach's Alpha = .94 (Vincenz, 1990) and for the *Teacher Efficacy Scale*, Cronbach's Alpha = .77 (Gibson & Dembo, 1984).

The *Hunt Paragraph Completion Method* was used because it was highly associated with beneficial outcomes for students (Allen, 1988; Calhoun, 1985; Flavell, 1968; Gilliam, 1990; Gordon, 1976; Harvey, 1967; Harvey, White, Prather, Alter & Hoffmeister, 1966; Hunt & Joyce, 1967; Joyce, Lamb & Sibol, 1966; Murphy & Brown, 1970; Rathbone & Harootunian, 1971; Smith, 1980; Sprinthall & Theis-Sprinthall, 1983; Theis-Sprinthall, 1980; Witherell & Erickson, 1978; Yarger, 1978). The *Hunt Paragraph Completion Method* assesses teacher conceptual level. It comprises five open-ended questions which include 1) What I think about rules . . . , 2) When I am criticized . . . , 3) When someone does not agree with me . . . , 4) When I am not sure . . . , and 5) When I am told what to do . . . (Hunt, Butler, Noy, & Rosser, 1978).

The literature has suggested a relationship between school climate and efficacy, so the *School Culture Survey* (Saphier & King, 1985) was included as well. The *School Culture Survey* measures Teacher Professionalism and Goal Setting, Administrator Professional Treatment of Teachers, and Teacher Collaboration, with 29 items on the scale. Reliability for Teacher Professionalism and Goal Setting is .91, reliability for Professional Treatment by Administration is .86, and reliability for Collaboration is .81 (Edwards, Green & Lyons, 1996).

The *Vincenz Empowerment Scale* (Vincenz, 1990) includes the concepts of mastery of

one's personal life (self-empowerment) and effective involvement with one's environment. The scale consists of six dimensions: 1) Potency; 2) Independence; 3) Relatedness; 4) Motivation; 5) Values; 6) Joy of Life. Seventy-four items comprise the original instrument.

The *Teacher Efficacy Scale* (Gibson & Dembo, 1984) is a thirty-item self-report scale which has been found to have 2 factors, Personal Teaching Efficacy (I can make a difference, or self-efficacy), and Teaching Efficacy (teachers can make a difference, or outcome expectancy). The respective reliabilities of these 2 subscales were found to be .78 and .75 by Gibson and Dembo (1984). Subscales were not significantly correlated ($r = .02$, $p = .74$). This suggests that they should be treated as separate measures.

A separate information sheet asked for teacher gender, age, ethnicity, subject and level taught, as well as other relevant demographic information.

All instruments were administered to experimental group participants in a group setting prior to the beginning of training sessions. Control group teachers completed the instruments in groups at their own schools. Analyses employed regressions for interval independent variables and multivariate analyses of variances for categorical independent variables. Scale structure was evaluated prior to statistical analysis.

## Results

### Scale Structure

Scale structure was determined by integrating the results of factor and Rasch analyses. Prior to analyses, items were recoded so that higher values indicated higher perceived levels of efficacy. A principal components analysis with varimax rotation was used to determine the factor

structure. Items were interpreted as reflecting a factor if loadings were .4 or higher. Previous work has suggested the *Teacher Efficacy Scale* (Gibson & Dembo, 1984) to comprise two subscales, so the analysis limited the number of factors to two. Eigenvalues for the first two factors were 3.9 and 3.1, for explanation of 23.5% of the variance. Table 3 provides loadings of items on the two factors. Seven items failed to load above .4 on the first two factors (items 3, 11, 18, 26, 27, 28, and 30) and another item loaded negatively. Of these items, seven were dropped. The one item retained loaded close to .4. All items were also analyzed using a Rasch model rating scale program (BIGSTEPS: Linacre & Wright, 1994). The Rasch model requires items to reflect a single latent dimension; however, item fit values can be used to identify item subsets forming distinct dimensions (Green, 1996). Rasch analysis resulted in definition of the same two subscales as found in factor analysis. Twelve items misfit in the Rasch analysis and so were dropped. Seven of the 12 items were ones that failed to load in the factor analysis; fourteen of these items were designated by the scale authors as "filler" items and were not intended for inclusion in subscales. Table 3 provides the fit values for each of the three subscales, logit difficulty values, and subscale reliabilities. Item fit values are scaled to a mean of 1.0; fit values under .6 and above 1.4 are more unusual than fit values between .7 and 1.3. Fit values are dependent on the configuration of the data, and so vary from sample to sample as do factor loadings. Logit difficulty provides an interval rescaling of the item means, with negative logit values indicating items that are easy to agree with and positive logit values indicating items that are difficult to agree with. An examination of the item logit difficulty values in Table 3 suggests that for each subscale, items are quite tightly grouped, the range of logit values extending from -.67 to +.98. The addition of items at the upper extreme would allow greater precision in measurement across a

broader range of opinion. Items tended to be easy for people in this sample to agree with. This is shown by Figure 1, which displays the distribution of person scores for subscale 1 in tandem with subscale 1 items. Items are clustered together and are targeted on the sample, but would provide greater precision if they covered a broader range.

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Table 3 and Figure 1 here

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Factor analysis of the *Teacher Efficacy Scale* indicated the addition of questions 9 and 17 to the teaching efficacy subscale, defined by Gibson and Dembo (1984), and the addition of items 7, 8, and 20 to the personal teaching efficacy subscale. Alpha reliability for the teaching efficacy subscale was .65; alpha reliability for the personal teaching efficacy subscale was .74. Rasch analysis supported division of the item set into two constructs, and provided interval-level measurement for each construct. Description of the distributions for the two subscales is provided in Table 4. Personal teaching efficacy was positively skewed, with a higher mean than teaching efficacy, which was normally distributed.

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Table 4 here

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Independent variables were grouped as school/organization and personal background variables. Personal background variables were further grouped as experience, satisfaction, and education.

School Organization Variables

Table 5 provides results of multivariate analyses of variance for school organization variables. Significant differences in personal teaching efficacy scores were found among administrators, teachers, and specialist/support staff, with personal teaching efficacy highest for administrators and lowest for teachers ($F = 9.71$, $p = .001$). Differences were also found in teaching efficacy for level (elementary, middle school, and high school), with elementary teachers reporting the highest teaching efficacy and senior high teachers reporting the lowest ($F = 5.42$, $p < .005$). No differences were found in teaching efficacy or personal teaching efficacy by socioeconomic status of the school, multiaging, or subject area taught.

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Table 5 here

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Personal Background Variables

Significant differences in teaching efficacy were found for gender, with males reporting lower teaching efficacy ($F = 5.91$, $p = .02$). There were no significant differences for ethnicity or educational level (Table 5).

The multiple regression of personal teaching efficacy for experience, satisfaction, and education variables resulted in an R of .22 ($p < .05$). For teaching efficacy, the multiple R was .31 ($p < .0001$), with years in present position, age, and satisfaction with position the significant predictors (Table 6).

Table 6 here

Other Outcome Variables

Table 7 presents the simple correlations between efficacy subscales and other outcome variables. While correlations with school culture and empowerment were statistically significant, they were low. Table 8 provides the regression of efficacy on other outcome variables with resulting multiple Rs that are similarly low.

As shown in Table 8, personal teaching efficacy can be predicted by Teacher Professionalism and Goal Setting on the *School Culture Survey* (Saphier & King, 1985), the question, "When I am not sure . . . " on the *Paragraph Completion Method* (Hunt, Butler, Noy & Rosser, 1978), and the Motivation subscale on the *Vincenz Empowerment Scale* (Vincenz, 1990). Teaching efficacy can be predicted by Administrator Professional Treatment of Teachers on the *School Culture Survey* (Saphier & King, 1985), the question, "What I think about rules . . . " on the *Paragraph Completion Method* (Hunt, Butler, Noy & Rosser, 1978), and both the Potency and Values subscales on the *Vincenz Empowerment Scale* (Vincenz, 1990).

Tables 7 and 8 here

Discussion

Factor and Rasch analyses supported the previously found structure of the *Teacher Efficacy Scale*. Two coherent, reliable subscales were found, with the items defining those

subscales similar to those identified by Gibson and Dembo (1984).

Evaluation of school and personal teacher characteristics associated with efficacy found results generally similar to those of previous investigations. Consistent with the literature, results of this study suggested a gender effect for efficacy, with women having higher scores for teaching efficacy. Years of experience was slightly negatively related to efficacy, while age was slightly positively related to efficacy, both results consistent with previous work. Elementary level teachers had the highest mean score for teaching efficacy, consistent with Greenwood et al. (1990), Guskey (1982), and Parkay et al. (1988) and others. Educational level in this study, however, showed no significant relationship to efficacy, in contrast to previous findings of a slight positive correlation between teaching efficacy and higher degrees.

Socioeconomic status of the school had no significant effect on efficacy. This result is consistent with that of Hoover-Dempsey et al. (1987, 1992). In the present study, low SES schools had a higher mean for teaching efficacy, but the differences were not significant. In a study by Rose and Medway (1981), teachers from low SES schools showed significantly higher efficacy. Effect sizes for school and personal characteristics were small (.02 to .09).

Significant relationships were also found between efficacy and empowerment, conceptual level, and school culture. But, as with school and personal characteristics, effect sizes were small (11-17% of the variance in efficacy accounted for). Personal teaching efficacy was the most closely related to motivation and teacher professionalism, while teaching efficacy was related to Administrator Professional Treatment of Teachers, perceived potency, and values.

One further finding of this study was a significant difference in efficacy due to position. School administrators reported the highest level of personal teaching efficacy, and also had a

higher level of teaching efficacy than did teachers. Administrators by virtue of their positions have greater power to impact the direction taken by a school than does a classroom teacher. Administrators in the study felt that they could make a difference. One must be aware, however, that the administrators who voluntarily attended training may not represent a broader group.

Findings of this study give us a possible profile of a low efficacy teacher as more likely to be male, a high school teacher, with fewer years of teaching experience, functioning at a lower conceptual level, and working in a less professional teaching environment. Early staff development interventions for teachers with this profile are recommended. Participation in decision making (Showers, 1980; Fletcher, 1990; Howat, 1990), encouragement to experiment and try new teaching strategies (Coladarci & Breton, 1991), participation in action research (Lofgren, 1988), and participation in team teaching and multiage grouping (Ashton, Webb & Doda, 1983) are all possible interventions.

While the psychometric structure of the *Teacher Efficacy Scale* (Gibson & Dembo, 1984) seems stable across both analysis methods and across studies, future scale revisions might address extending the "agreeability" range of items on both subscales. Future research might also address the relationship between efficacy and changes in targeted efficacious teacher behaviors.

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Table 1

Background Characteristics of Teacher Participants

| | % | $\bar{X}$ | SD | n |
|---|---|---|---|---|
| Gender | | | | |
| Male | 10.1 | | | 32 |
| Female | 89.9 | | | 382 |
| Ethnicity | | | | |
| Asian/Pacific Islander | .7 | | | 3 |
| Native American/Alaskan | .5 | | | 2 |
| Hispanic | 3.8 | | | 16 |
| Black | 1.2 | | | 5 |
| Caucasian | 93.4 | | | 397 |
| Jewish | .2 | | | 1 |
| Level of School | | | | |
| Elementary | 83.0 | | | 351 |
| Middle School | 11.3 | | | 48 |
| Senior High | 5.7 | | | 24 |
| Socioeconomic Status of School | | | | |
| Low | 31.4 | | | 133 |
| Middle | 34.5 | | | 146 |
| High | 34.0 | | | 144 |
| Highest Degree | | | | |
| Bachelor's or Bachelor's + 40 | 37.0 | | | 153 |
| Master's Degree | 18.4 | | | 76 |
| Bachelor's + 60 Sem. Hrs., Including Master's | 8.2 | | | 34 |
| Bachelor's + 75 Sem. Hrs., Including Master's | 13.6 | | | 56 |
| Bachelor's + 90 Sem. Hrs., Including Master's | 21.3 | | | 88 |
| Ph.D., Ed.D., or Juris Doctor | 1.5 | | | 6 |

Table 1 (Continued)

| | % | $\bar{X}$ | SD | n |
|---|---|---|---|---|
| Socioeconomic Status of School | | | | |
| Low | 31.4 | | | 133 |
| Middle | 34.5 | | | 146 |
| High | 34.0 | | | 144 |
| Multiage Classroom | | | | |
| Yes | 32.7 | | | 82 |
| No | 67.3 | | | 169 |
| Age | | 43.25 | 8.38 | 413 |
| Years of Teaching Experience | | 13.37 | 8.72 | 416 |
| Years in Present Position | | 5.60 | 6.43 | 415 |
| Years at Present School | | 5.56 | 6.05 | 416 |
| Years in School District | | 11.11 | 8.28 | 416 |
| Grade Level Taught | | 3.93 | 2.64 | 422 |
| Number of Semester Hours in the Last Year | | 4.14 | 5.89 | 416 |
| Number of Inservice Credits in the Last Year | | 1.62 | 2.11 | 415 |
| Years Since Most Recent Degree Was Awarded | | 12.88 | 8.67 | 403 |

Table 1 (Continued)

| | % | $\bar{X}$ | SD | n |
|---|---|---|---|---|
| Satisfaction with Teaching as a Career | | 4.36 | .81 | 413 |
| Satisfaction with Position | | 4.36 | .80 | 414 |
| Attitude Toward Standards-Based Education | | 4.07 | .80 | 413 |
| Number of Behavior Problem Students | | 10.79 | 18.23 | 407 |

Table 2

Background Characteristics of Administrator Participants

| | % | $\bar{X}$ | SD | n |
|---|---|---|---|---|
| Gender | | | | 33 |
| Male | 30.3 | | | 10 |
| Female | 69.7 | | | 23 |
| Ethnicity | | | | 31 |
| Asian/Pacific Islander | .0 | | | 0 |
| Native American/Alaskan | .0 | | | 0 |
| Hispanic | 6.5 | | | 2 |
| Black | .0 | | | 0 |
| Caucasian | 93.5 | | | 29 |
| Level of School | | | | 29 |
| Elementary | 72.4 | | | 21 |
| Middle School | 6.9 | | | 2 |
| Senior High | 20.7 | | | 6 |
| Socioeconomic Status of School | | | | 19 |
| Low | 10.5 | | | 2 |
| Middle | 36.8 | | | 7 |
| High | 52.6 | | | 10 |
| Highest Degree | | | | 24 |
| Bachelor's or Bachelor's + 40 | .0 | | | 0 |
| Master's Degree | 12.5 | | | 3 |
| Bachelor's + 60 Sem. Hrs., Including Master's | 4.2 | | | 1 |
| Bachelor's + 75 Sem. Hrs., Including Master's | 16.7 | | | 4 |
| Bachelor's + 90 Sem. Hrs., Including Master's | 41.7 | | | 10 |
| Ph.D., Ed.D., or Juris Doctor | 25.0 | | | 6 |

Table 2 (Continued)

| | % | $\bar{X}$ | SD | n |
|---|---|---|---|---|
| Age | | 46.36 | 5.58 | 25 |
| Years of Teaching Experience | | 17.12 | 7.45 | 25 |
| Years in Present Position | | 3.96 | 4.40 | 27 |
| Years at Present School | | 3.22 | 3.77 | 6 |
| Years in School District | | 13.17 | 7.03 | 6 |
| Number of Semester Hours in the Last Year | | 7.28 | 10.50 | 23 |
| Number of Inservice Credits in the Last Year | | 3.22 | 2.09 | 23 |
| Year Most Recent Degree Was Awarded | | 1983.21 | 8.27 | 24 |
| Satisfaction with Position | | 4.58 | .50 | 24 |
| Satisfaction with Teaching as a Career | | 4.46 | .72 | 24 |
| Attitude Toward Standards-Based Education | | 4.17 | .78 | 23 |

Table 3

Factor Loadings, Fit Values, and Logit Item Difficulty for School Culture Scale Subscales

| Item | Factor Loading 1 | 2 | Scale | Item Fit | Logit Difficulty |
|---|---|---|---|---|---|
| 1 | .43 | | 1 | 1.2 | .06 |
| 2 | | .43 | 2 | 1.1 | -.03 |
| 3[a] | | | | | |
| 4 | | .51 | 2 | 1.1 | -.44 |
| 5[b] | .42 | | | | |
| 6 | | .58 | 2 | 1.0 | .08 |
| 7[b] | .47 | | | | |
| 8[b] | .41 | | | | |
| 9 | | .41 | 2 | 1.0 | .44 |
| 10[b] | | .46 | | | |
| 11[a] | | | | | |
| 12 | .43 | | 1 | 1.2 | -.67 |
| 13 | | .42 | 2 | 1.1 | -.89 |
| 14 | .49 | | 1 | .8 | .46 |
| 15 | .57 | | 1 | 1.3 | -.21 |
| 16 | | .70 | 2 | .7 | -.14 |
| 17[b] | | .44 | | | |
| 18[a] | | | | | |
| 19 | .59 | | 1 | .7 | .04 |
| 20[b] | .47 | | | | |
| 21 | .54 | | 1 | 1.0 | .11 |
| 22[c] | | | | | |
| 23 | | .47 | 2 | 1.2 | .98 |
| 24 | .54 | | 1 | .8 | .49 |
| 25 | .53 | | 1 | 1.2 | -.57 |
| 26[a] | | | | | |
| 27[a] | | | | | |
| 28 | (.38) | | 1 | 1.1 | .49 |
| 29 | .43 | | 1 | 1.2 | -.18 |
| 30[a] | | | | | |

Reliability of Person Separation: Scale 1--.76; Scale 2--.67

[a]Failed to load in factor analysis and misfit in Rasch analysis.

[b]Misfit in Rasch analysis.

[c]Loaded negatively in factor analysis and misfit in Rasch analysis.

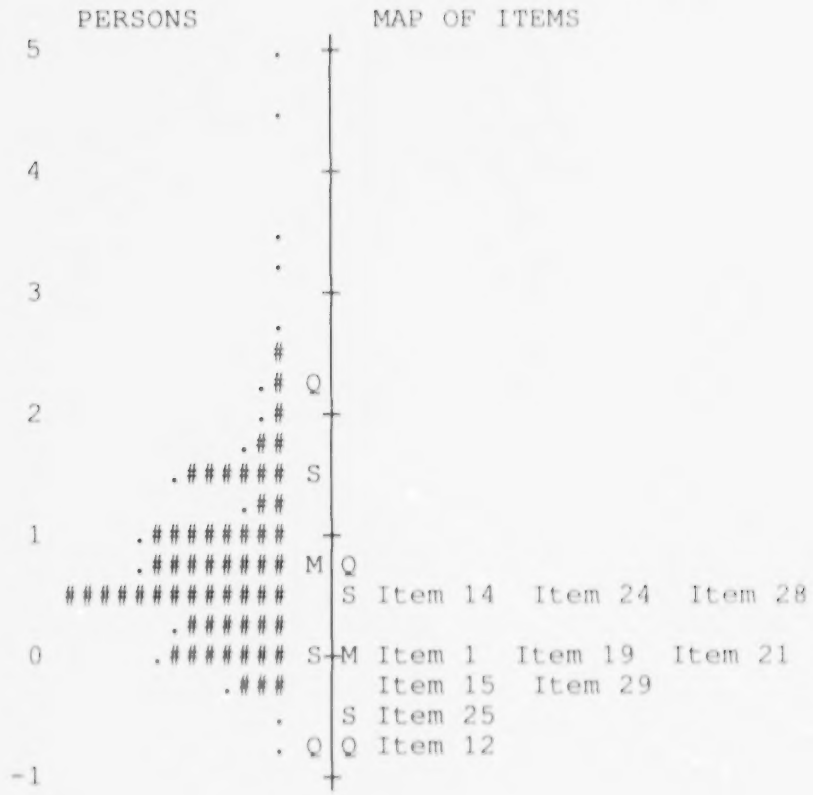


Figure 1. Map of Persons and Items

Table 4

Mean, Standard Deviation, Skewness, and Kurtosis for the Teacher Efficacy Scale

| | Subscale I Personal Teaching Efficacy | Subscale II Teaching Efficacy |
|---|---|---|
| $\bar{X}$[a] | .89 | .16 |
| SD | .82 | .60 |
| Skewness | 1.37 | .01 |
| Kurtosis | 3.68 | .76 |
| n | 452 | 452 |

[a] Means are expressed in logits.

Table 5

Multivariate Analysis of Variance for the *Teacher Efficacy Scale*

| | Subscale I Personal Teaching Efficacy | | | | | Subscale II Teaching Efficacy | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $\bar{X}$ | SD | n | F | p | $\bar{X}$ | SD | n | F | p |
| Position | | | | | | | | | | |
| Teacher | .81 | .75 | 356 | | | .13 | .62 | 357 | | |
| Administrator | 1.34 | .95 | 24 | 9.71 | .001*** | .26 | .55 | 24 | 1.91 | .15 |
| Specialist | 1.18 | 1.01 | 63 | | | .28 | .51 | 63 | | |
| Pillai's = .05, p < .001; Box's M = 17.41, p < .10 | | | | | | | | | | |
| Level of School | | | | | | | | | | |
| Elementary | .88 | .82 | 349 | | | .20 | .61 | 349 | | |
| Middle School | .89 | .83 | 48 | 1.02 | .36 | -.06 | .51 | 48 | 5.42 | .005** |
| Senior High | .63 | .64 | 23 | | | -.09 | .58 | 24 | | |
| Wilk's Lambda = .97, p < .02; Box's M = 6.25, p > .10 | | | | | | | | | | |
| Socioeconomic Level | | | | | | | | | | |
| Low | .86 | .70 | 132 | | | .21 | .60 | 132 | | |
| Middle | .85 | .83 | 145 | .04 | .96 | .10 | .64 | 146 | .97 | .38 |
| High | .88 | .88 | 143 | | | .16 | .58 | 143 | | |
| NS Multivariate Effect | | | | | | | | | | |
| Grouping | | | | | | | | | | |
| Multiage | .70 | .71 | 82 | 3.03 | .09 | .19 | .72 | 82 | .10 | .75 |
| Single | .89 | .81 | 167 | | | .22 | .61 | 167 | | |
| NS Multivariate Effect | | | | | | | | | | |

Table 5 (Continued)

| | Subscale I Personal Teaching Efficacy | | | | | Subscale II Teaching Efficacy | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $\bar{X}$ | SD | n | F | p | $\bar{X}$ | SD | n | F | p |
| Subject Area | | | | | | | | | | |
| Math/ Science | .75 | .56 | 23 | | | -.01 | .60 | 23 | | |
| English/ Lang. Arts | .73 | .64 | 52 | .91 | .41 | .02 | .56 | 52 | .05 | .95 |
| Social Studies | 1.06 | 1.12 | 9 | | | -.12 | .60 | 10 | | |
| | NS Multivariate Effect | | | | | | | | | |
| Gender | | | | | | | | | | |
| Male | .70 | .72 | 42 | 2.04 | .15 | -.08 | .51 | 43 | 5.91 | .02** |
| Female | .88 | .82 | 379 | | | .18 | .61 | 379 | | |
| | Wilk's Lambda = .98, p < .02; Box's M = 4.17, p > .10 | | | | | | | | | |
| Ethnicity | | | | | | | | | | |
| Caucasian | .87 | .81 | 393 | .12 | .73 | .15 | .61 | 394 | .74 | .39 |
| Other | .81 | .85 | 27 | | | .26 | .62 | 27 | | |
| | NS Multivariate Effect | | | | | | | | | |
| Educational Level | | | | | | | | | | |
| Bachelor's | .77 | .80 | 413 | 2.90 | .09 | .18 | .61 | 153 | .35 | .56 |
| Master's + | .91 | .86 | 260 | | | .14 | .60 | 261 | | |
| | NS Multivariate Effect | | | | | | | | | |

Table 6

Multiple Regression of Experience, Satisfaction, and Education

| | Subscale I Personal Teaching Efficacy | | | Subscale II Teaching Efficacy | | |
|---|---|---|---|---|---|---|
| | Beta | t | p | Beta | t | p |
| Experience Variables | | | | | | |
| Years of Experience | .10 | .86 | .39 | -.06 | -.52 | .60 |
| Years in Position | .11 | 1.45 | .15 | -.17 | -2.29 | .02* |
| Age | -.004 | -.07 | .95 | .15 | 2.09 | .04* |
| Years at School | -.05 | -.60 | .55 | -.11 | -1.41 | .16 |
| Years in District | -.02 | -.14 | .89 | .14 | 1.35 | .18 |
| Satisfaction Variables | | | | | | |
| Satisfaction with Teaching as a Career | .03 | .50 | .61 | -.07 | -1.28 | .20 |
| Satisfaction with Position | .08 | 1.32 | .19 | .24 | 4.33 | .0001*** |
| Education Variables | | | | | | |
| Year Since Most Recent Degree was Awarded | .06 | .96 | .34 | .003 | .05 | .96 |
| Semester Hours in Last Year | -.06 | -1.16 | .25 | .03 | .63 | .53 |

Table 6 (Continued)

| | Subscale I Personal Teaching Efficacy | | | Subscale II Teaching Efficacy | | |
|---|---|---|---|---|---|---|
| | Beta | t | p | Beta | t | p |
| Inservice Credits in Last Year | .01 | .27 | .79 | .03 | .53 | .59 |
| R | .22 | | | .31 | | |
| $R^2$ | .05 | | | .09 | | |
| Adjusted $R^2$ | .02 | | | .07 | | |

Table 7

Correlations Between Teacher Efficacy Subscales and School Culture, Teacher Empowerment, and Teacher Conceptual Level

| | Subscale I Personal Teaching Efficacy | | Subscale II Teaching Efficacy | |
|---|---|---|---|---|
| | r | p | r | p |
| *School Culture Survey* | | | | |
| Subscale I Teacher Professionalism | .19 | .001*** | .07 | .13 |
| Subscale II Administrator Treatment of Teachers | .13 | .006** | .15 | .001*** |
| Subscale III Teacher Collaboration | .17 | .001*** | .06 | .19 |

Note. The n for correlations ranged from 420 to 422.

Table 7 (Continued)

| | Subscale I Personal Teaching Efficacy | | Subscale II Teaching Efficacy | |
|---|---|---|---|---|
| | r | p | r | p |
| *Vincenz Empowerment Scale* | | | | |
| Potency Scale | .17 | .001*** | .30 | .001*** |
| Independence Scale | .19 | .001*** | .26 | .001*** |
| Relatedness Scale | .13 | .008** | .21 | .001*** |
| Motivation Scale | .23 | .001*** | .21 | .001*** |
| Values Scale | .13 | .007** | .28 | .001*** |
| Joy of Life Scale | .12 | .03* | .16 | .001*** |
| Total Empowerment Score | .22 | .001*** | .32 | .001*** |

Note. The n for correlations ranged from 420 to 422.

Table 7 (Continued)

| | Subscale I Personal Teaching Efficacy | | Subscale II Teaching Efficacy | |
|---|---|---|---|---|
| | r | p | r | p |
| *Paragraph Completion Method* | | | | |
| R | -.06 | .20 | .15 | .003** |
| C | -.03 | .55 | .05 | .33 |
| D | .04 | .43 | .10 | .05* |
| NS | .11 | .03* | .08 | .09 |
| T | .02 | .73 | .09 | .08 |
| X3 | -.01 | .84 | .12 | .02* |

Note. The n for correlations ranged from 420 to 422.

Note. The letters stand for the following questions:
R = What I think about rules . . . .
C = When I am criticized . . . .
D = When someone does not agree with me . . . .
NS = When I am not sure . . . .
T = When I am told what to do . . . .
X3 = Overall conceptual level score.

Table 8

Multiple Regression of Efficacy Subscales on School Culture, Conceptual Level, and Empowerment

| | Subscale I Personal Teaching Efficacy | | | Subscale II Teaching Efficacy | | |
|---|---|---|---|---|---|---|
| | Beta | t | p | Beta | t | p |
| *School Culture Survey* | | | | | | |
| Teacher Professionalism and Goal Setting | .16 | 2.21 | .03* | -.10 | -1.38 | .17 |
| Administrator Professional Treatment of Teachers | -.07 | -.99 | .32 | .16 | 2.42 | .02* |
| Teacher Collaboration | .09 | 1.42 | .16 | -.004 | -.07 | .94 |
| *Hunt Paragraph Completion Method* | | | | | | |
| R | -.02 | -.40 | .69 | .15 | 2.51 | .02* |
| C | -.04 | -.71 | .48 | -.01 | -.23 | .82 |
| D | .06 | .93 | .35 | .06 | 1.02 | .31 |
| NS | .13 | 2.23 | .03* | .02 | .27 | .79 |
| T | .04 | .61 | .54 | -.001 | -.02 | .99 |
| X3 | -.16 | -1.37 | .17 | -.07 | -.64 | .52 |

Table 8 (Continued)

| | Subscale I Personal Teaching Efficacy | | | Subscale II Teaching Efficacy | | |
|---|---|---|---|---|---|---|
| | Beta | t | p | Beta | t | p |
| *Vincenz Empowerment Scale* | | | | | | |
| Motivation | .15 | 2.63 | .009** | .02 | .35 | .73 |
| Potency | .06 | .79 | .43 | .19 | 2.65 | .008** |
| Independence | .03 | .41 | .68 | .03 | .36 | .72 |
| Relatedness | -.02 | -.32 | .75 | .04 | .60 | .55 |
| Values | .06 | 1.13 | .26 | .22 | 4.49 | .0001**** |
| Joy of Life | -.01 | -.16 | .88 | -.03 | -.51 | .61 |
| R | .34 | | | .42 | | |
| $R^2$ | .11 | | | .17 | | |
| Adjusted $R^2$ | .08 | | | .14 | | |

Note. The letters on the *Hunt Paragraph Completion Method* stand for the following questions:
R = What I think about rules . . . .
C = When I am criticized . . . .
D = When someone does not agree with me . . . .
NS = When I am not sure . . . .
T = When I am told what to do . . . .
X3 = Overall conceptual level score.